ABSTRACT

A discrete cosine transform (DCT) level enhancement to Motion Picture Experts

Group (MPEG) video encoding is described that results in a more concise bitstream than

MPEG encoding without the enhancement. One degree of freedom provided by the

5 MPEG encoding specifications is whether a frame- or field-based DCT operation will be

used. In the field-based DCT operations, luminance sub-blocks are built from even or

odd rows of the original image, which correspond to the top and bottom fields in field
based video. This allows the encoder to take advantage of the higher correlation between

rows for the same field, especially in field-based video with a high level of motion. In

one embodiment, both field- and frame-based DCT operations are performed and the

results are quantized. On a macroblock-by-macroblock basis, the option that results in

the fewest non-zero coefficients is selected and those coefficients are used for run-time

encoding.